



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT, JR.
GOVERNOR

DIVISION OF HIGHWAYS
P.O. BOX 25201, RALEIGH, N.C. 27611-5201
November 12, 1993

SAM HUNT
SECRETARY

Ms. Sharon Cihak
Guilford County Dept. of
Emergency Services
P.O. Box 18807
Greensboro, North Carolina 27419

Re: Former McLamb's Grocery
2323 East Green Drive
High Point, Guilford County

Dear Ms. Cihak:

Enclosed is a copy of the report prepared by Geophex, Ltd. documenting additional remedial activities at the above referenced site. As stated in the report, the groundwater contacted by the monitoring well which you requested was determined to be perched, so no additional wells were advanced.

This office is currently receiving cost estimates for the disposal of the approximately 450 cubic yards of soil containing petroleum which was excavated from the site. You will be notified within several days as to the firm and disposal method we select. Removal and disposal of this soil should occur within a few weeks after that.

If you have any additional questions or comments concerning our activities at the site, please contact Ms. Eileen Fuchs or me at (919) 250-4088. Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "Gregory A. Smith".

Gregory A. Smith, L.G.
Environmental Geologist
Geotechnical Unit



Geophex, Ltd
605 Mercury Street
Raleigh, North Carolina 27603
(919) 839-8515

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AUG 30 1993

**DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT**

August 25, 1993

Mr. Gregory A. Smith, P.G.
Environmental Geologist
Geotechnical Unit
NC Department of Transportation
P.O. Box 25201
Raleigh, NC 27611-5201

Subject: Addendum to Underground Storage Tank Closure Report for 2323 East Green Drive, High Point, Guilford County, NC., Geophex Job No. 312.

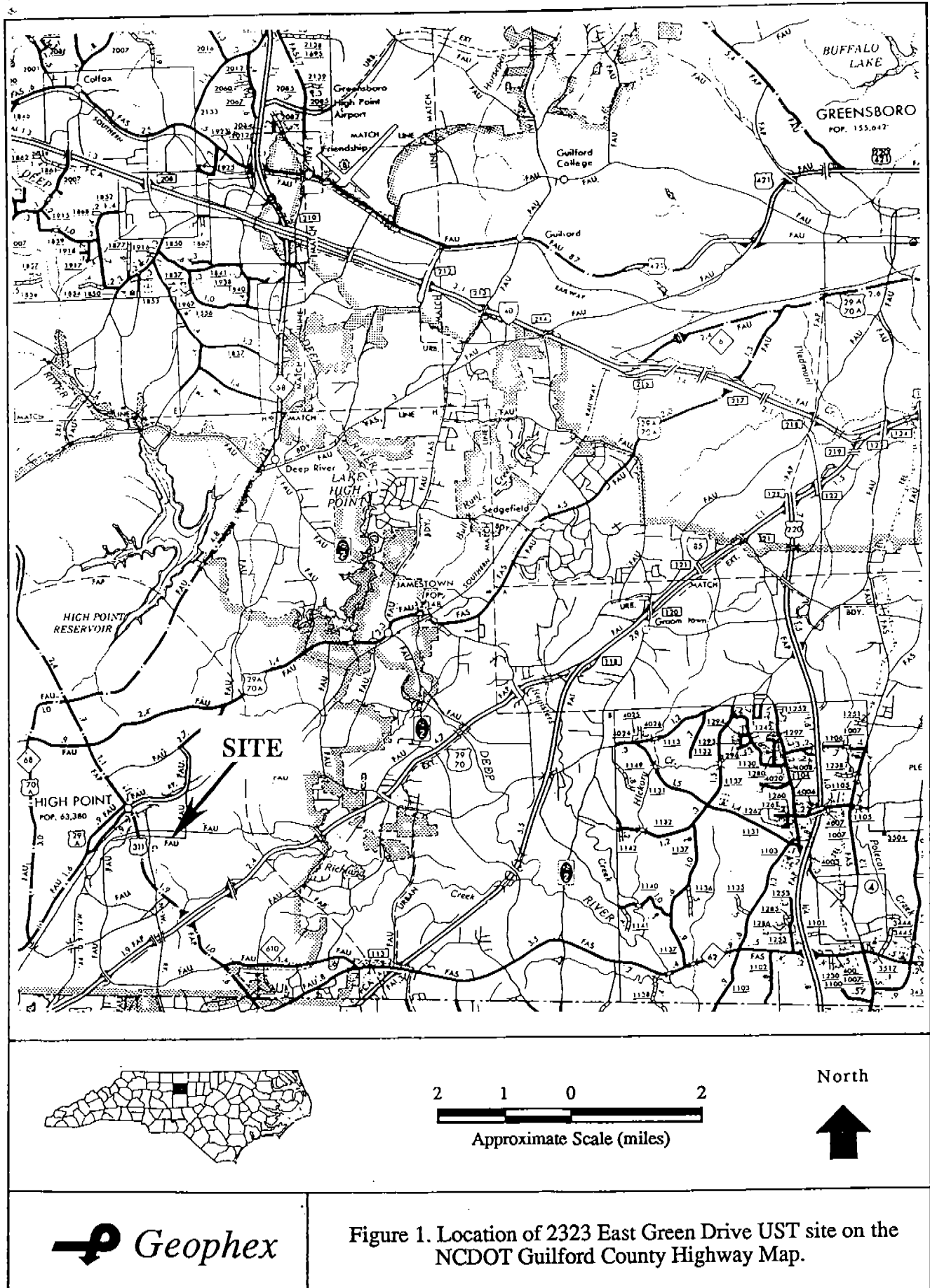
Ref: NC DOT Project: 8.1570603, ID No.: R-609I, FA Project: MAP-119-1(3).

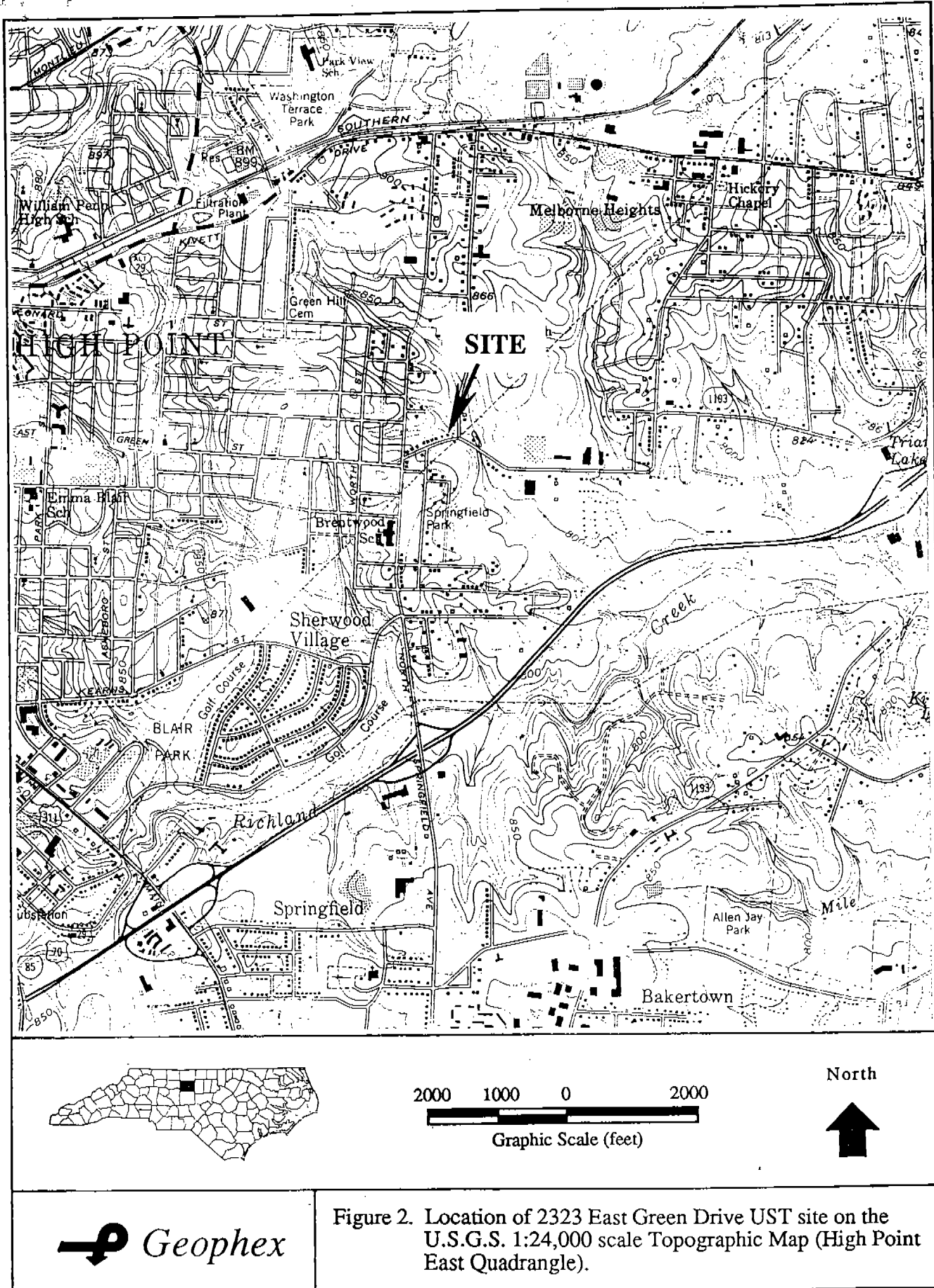
Dear Mr. Smith:

Geophex conducted additional activities (as authorized by NC DOT on June 21, 1993) during June and July 1993, at the former underground storage tank (UST) site located on North Carolina Department of Transportation (NC DOT) property at 2323 East Green Drive, High Point, Guilford Co., NC (Figures 1 and 2). This letter report serves as an addendum to the original site closure report which Geophex submitted to NC DOT on December 16, 1992.

The additional activities included installing one monitor well and to removing approximately 400 cubic yards of contaminated soil. On June 23, 1993, we advanced one hand-augered soil boring to a depth of 14.3 feet below ground surface within the subsurface soil contamination zone. The auger boring record with soil-gas survey results are included in Appendix A. We installed a temporary monitor well (labeled MW-2, see Figure 3) to investigate the extent of groundwater contamination within the previously delineated area of soil contamination (see original report and addendum letter; Geophex Job No. 312, December 16, 1992, and May 26, 1993). A ten-foot slotted polyvinyl chloride (PVC) well screen with a 5 foot length of PVC riser pipe was inserted into the open hole to aide in the collection of a groundwater sample. We allowed the temporary well to stand overnight, collecting a groundwater sample after bailing the well on the following day.

We analyzed the groundwater sample for dissolved petroleum constituents at a certified laboratory (IEA Inc., Cary, NC) using EPA Methods 601 and 602. Laboratory results for MW-2 are shown in comparison to groundwater standards listed in Section .0200 of the North Carolina Administrative Code (NCAC), Title 15A, Subchapter 2L (NCAC 2L, 1992) in Table 1. Certificates of analysis and Chain of Custody record are included in Appendix B. Laboratory analyses indicate detectable petroleum contamination in MW-2 (benzene concentration of 1,300 µg/L and 53 µg/L of 1,2-dichloroethane) in excess of the NCAC





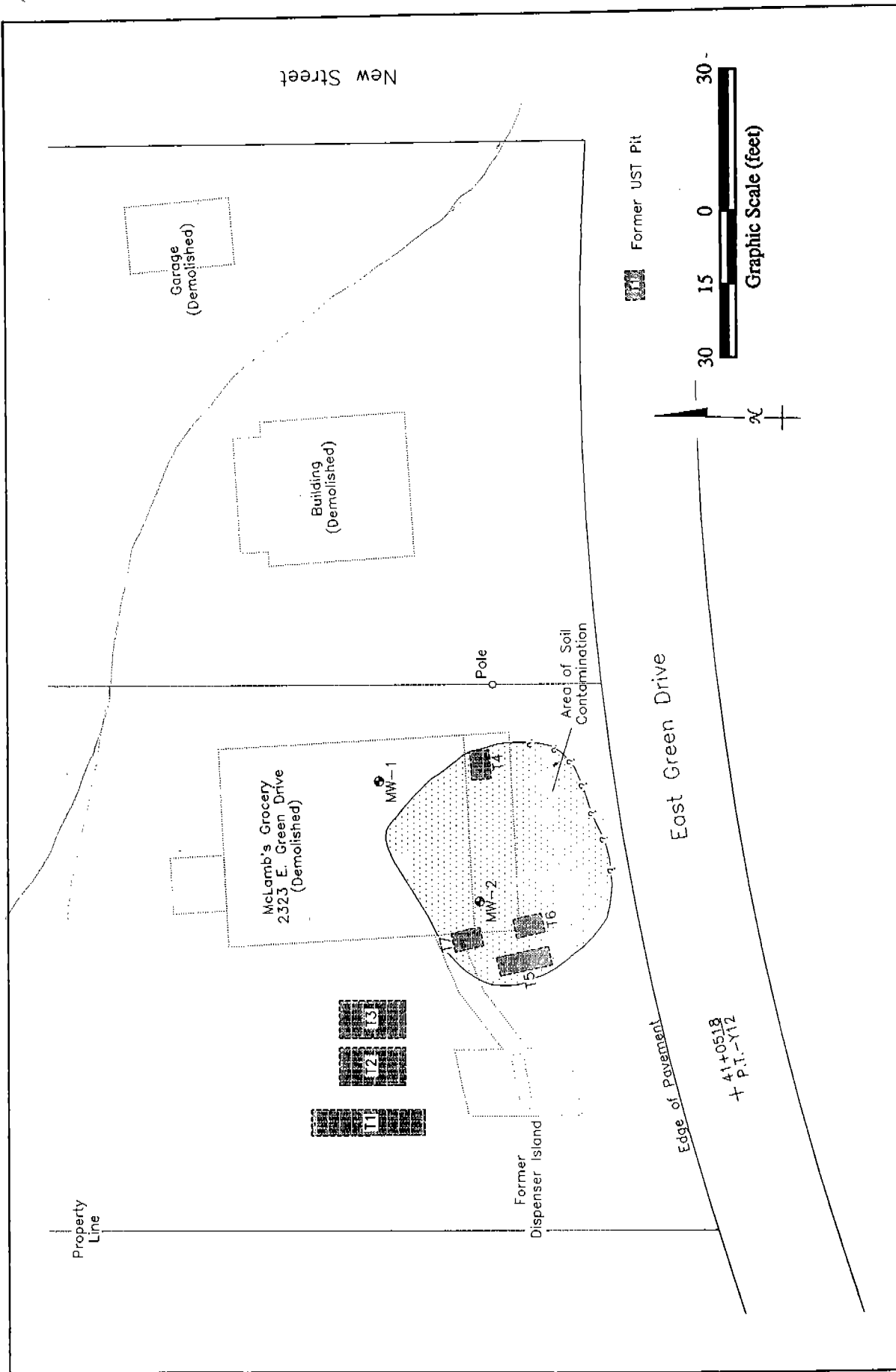
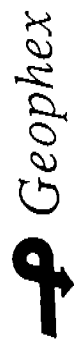


Figure 3. Site map of 2323 East Green Drive UST site, showing former site conditions , location of monitor wells MW-1 and MW-2, and area of soil contamination.



2L Standards. No other compounds exceeded the NCAC 2L Standard.

Table 1. Laboratory results of groundwater sample collected from monitor well MW-2 at McLamb's Grocery UST Site, 2323 E. Green Drive, High Point, Guilford Co., NC.

<u>EPA Method 601</u>		
<i>Compound</i>	MW-1 (µg/L)	NCAC 2L Standard (µg/L)
Chloromethane	<1.0	NSL
Bromomethane	<1.0	NSL
Vinyl chloride	<1.0	0.15
Dichlorodifluoromethane	<1.0	0.19
Chloroethane	<1.0	NSL
Methylene chloride	<1.0	5.0
Trichlorofluoromethane	<1.0	NSL
1,1-Dichloroethene	<1.0	NSL
1,1-Dichloroethane	<1.0	NSL
trans-1,2-dichloroethene	<1.0	70
Chloroform	<1.0	0.19
1,2-Dichloroethane	53	0.38
1,1,1-Trichloroethane	<1.0	200
Carbon tetrachloride	<1.0	0.3
Bromodichloromethane	<1.0	NSL
1,2-Dichloropropane	<1.0	0.56
cis-1,3-Dichloropropene	<1.0	NSL
Trichloroethene	<1.0	NSL
trans-1,3-Dichloropropene	<1.0	NSL
1,1,2-Trichloroethane	<1.0	NSL
Dibromochloromethane	<1.0	NSL
2-Chloroethylvinyl ether	<1.0	NSL
Bromoform	<1.0	0.19
Tetrachloroethene	<1.0	NSL
1,1,2,2-Tetrachloroethane	<1.0	NSL
Chlorobenzene	<1.0	300
1,3-Dichlorobenzene	<1.0	620
1,2-Dichlorobenzene	<1.0	620
1,4-Dichlorobenzene	<1.0	1.8
<u>EPA Method 602</u>		
<i>Compound</i>	MW-1 (µg/L)	NCAC 2L Standard (µg/L)
Benzene	1,300	1.0
Chlorobenzene	<1.0	300
1,2-Dichlorobenzene	<1.0	620
1,3-Dichlorobenzene	<1.0	620
1,4-Dichlorobenzene	<1.0	1.8
Ethylbenzene	<1.0	29
Toluene	<1.0	1,000
Xylenes (Total)	270	400

NSL: No specific limit listed under NCAC 2L Groundwater Standards

Bolded text indicates that compound exceeds NCAC 2L Standard.

Geophex contracted Spatco Environmental to excavate the previously delineated area of soil contamination. Geophex field screened the upper 4 - 6 feet of soil using a photoionization detector and stockpiled these clean soils for use as backfill. Spatco removed approximately 450

cubic yards (cuyds) of contaminated soil and stockpiled it on site during July 26 - 28, 1993. The excavated area measures 45 feet x 45 feet with excavated depths ranging from 6 - 18 feet. The base of the entire excavated area encountered stiff saprolite but did not encounter the groundwater table. The depth of the excavated pit varied due to topography and is not the result of a sloping bedrock surface. Spatco backfilled the excavation with approximately 305 tons of approved borrow material and the clean soil stockpiled from the excavation, and graded the site to NC DOT specifications.

Three soil samples (E-1, through E-3) were collected at the base of the excavation along its west, north, and east margins (see Figure 4). A small volume of contaminated soil remains beneath the pavement of East Green Drive. Overhanging utility lines and our proximity to the road prevented the excavation of the remaining contaminated soils. We submitted the three samples to an analytical laboratory (IEA Inc., Cary, NC) for total petroleum hydrocarbon (TPH) analysis by EPA Methods 3550 (diesel fraction) and 5030 (gasoline fraction). Lithologic descriptions of the soil samples and results of the TPH analyses are included in Table 2. Original laboratory certificates of analysis and Chain of Custody record are included in Appendix C.

Table 2. Laboratory results of three soil samples collected from the excavation pit at McLamb's Grocery UST Site, 2323 E. Green Drive, High Point, Guilford Co., NC.

Sample ID	Soil Description	Sample Depth (feet)	Petroleum Odor	TPH 3550 (mg/kg)	TPH 5030 (mg/kg)
E-1	Saprolite	12	None	23	<12.0
E-2	Saprolite	8	None	4	<2.0
E-3	Saprolite	8	None	<2.0	<2.0

The North Carolina Division of Environmental Management (NC DEM), a branch of the North Carolina Department of Environment, Health, and Natural Resources (NC DEHNR), specifies an action level of 10 ppm for TPH (EPA Method 5030), and 40 ppm for TPH (EPA Method 3550), as determined by laboratory methods (NC DEHNR, 1993). Above the action level, NC DEM may require additional investigation and/or remediation of the site. Laboratory analyses of the three soil samples are below NC DEM action levels.

Previously identified groundwater contamination appears to be the result of perched groundwater within the contaminated soil horizon. We base this conclusion on the observation that the groundwater table was not encountered during excavation of contaminated soils, and the TPH analyses of the saprolite at the base of the pit were below NC DEM action levels and that no groundwater contamination was present in MW-1 (see Figure 3) despite its proximity to the contaminated soils.

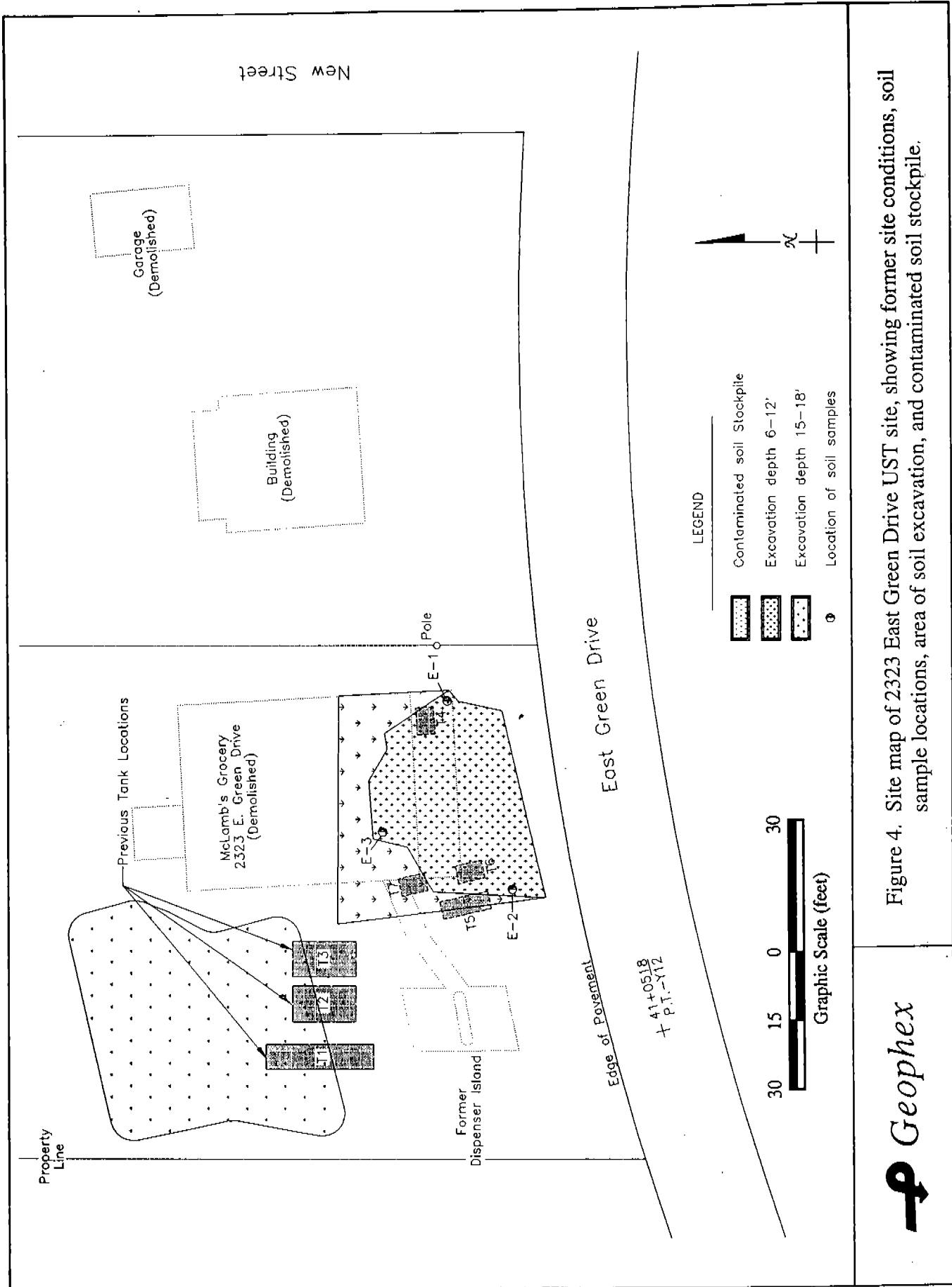


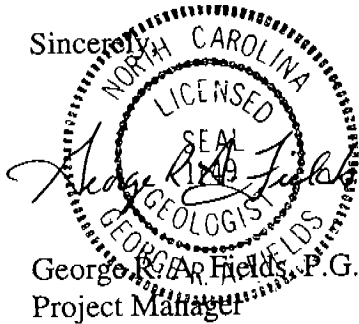
Figure 4. Site map of 2323 East Green Drive UST site, showing former site conditions, soil sample locations, area of soil excavation, and contaminated soil stockpile.

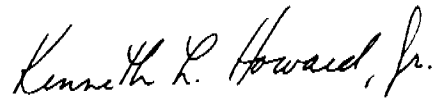
Geophex

Based on the data collected at this site we recommend the following:

- 1) Transport to an approved disposal facility or landfarm the estimated 450 cu yds of contaminated soil currently stockpiled on site within 45 days, by September 12, 1993. Landfarming the material at a land application rate of 3 inches will require approximately 1 acre and can be performed on site. Incorporate the contaminated soil into the native material adding fertilizers approximately 15 - 30 days after disposal.
- 2) Notify NC DEM's Winston-Salem office of the results of this investigation. Consider the site closed.

Sincerely,


George R. Fields, P.G.
Project Manager



Kenneth L. Howard, Ph.D.
Program Manager

References






- Geophex Report, Underground Storage Tank Closure at 2323 East Green Street, High Point, Guilford County, NC., Geophex Job No. 312, December 16, 1992.
- Geophex Report, Addendum to Underground Storage Tank Closure Report for 2323 East Green Drive, High Point, Guilford County, NC., Geophex Job No. 312, May 26, 1993.
- NCAC 2L, 1992, North Carolina Administrative Code, Title 15A, Subchapter 02L .0200 Water Quality Standards, NC Department of Environment, Health, and Natural Resources.
- North Carolina Department of Environment, Health, and Natural Resources, 1993, Division of Environmental Management--Groundwater Section--, Groundwater section guidelines for the investigation and remediation of soils and groundwater, 95 p.

Appendix A

Geophex Auger Boring Record.

<u>Description</u>	<u>Page</u>
Auger Boring Record MW-2	A-1

Geophex Auger Boring Record

Depth (feet)	Geological and Lithologic Descriptions	Hnu (ppm)	Litho- logy
0	BACKFILL: Gray, ABC crush & run		
1			
2	CLAY: Red, silty, saprolitic rock chips, no petroleum odor		
3		pid 0	
4			
5	CLAY: Red, silty, saprolitic rock chips, weak petroleum odor		
6	CLAY: Red, silty, slight brown-yellow mottling, rock fragments & chips, moderate petroleum odor	pid 25	
7	CLAY: Green-yellow, silty, strong petroleum odor		
8	SILT: Green-gray-black, clayey, minor sand, rock hash, moist, very strong petroleum odor		
9		pid 1229	
10			
11	SAND: Yellow-gray, silty, minor clay, moist, rock chips & hash, strong petroleum odor		
12		pid 266	
13	SAND: Gray-green, silty, damp, minor clay, rock chips, moderate to strong petroleum odor		
14			
15	E.O.B. @ 14.3 feet Water Table Indeterminate		

Boring No. MW-2

Site: 311 Bypass

Job No. 312

Date: 6/23/93

Appendix B

Laboratory Analytical Results and Chain of Custody Record

Groundwater Sample from MW-2 using EPA Methods 601 and 602.

<u>Description</u>	<u>Page</u>
MW2-1 by EPA Method 601	B-1
MW2-1 by EPA Method 602	B-2
Field Blank by EPA Method 601	B-3
Field Blank by EPA Method 602	B-4
QC Blank by EPA Method 601	B-5
QC Blank by EPA Method 602	B-7
Chain of Custody Record	B-9



IEA
An Aquarion Company

PURGEABLE HALOCARBONS
EPA 601 COMPOUND LIST

IEA Project Number:	646-140	Date Received:	06/24/93
IEA Sample Number:	9306487-01	Date Sampled:	06/24/93
Client Name:	Geophex, LTD	Date Analyzed:	07/06/93
Client Project ID:	312 Guilford 311 Bypass	Analysis By:	Ware
Sample Identification:	MW2-1	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation	Results
		Limit (ug/L)	Concentration (ug/L)
1	Chloromethane	1.0	BQL
2	Bromomethane	1.0	BQL
3	Vinyl Chloride	1.0	BQL
4	Dichlorodifluoromethane	1.0	BQL
5	Chloroethane	1.0	BQL
6	Methylene chloride	1.0	BQL
7	Trichlorofluoromethane	1.0	BQL
8	1,1-Dichloroethene	1.0	BQL
9	1,1-Dichloroethane	1.0	BQL
10	trans-1,2-Dichloroethene	1.0	BQL
11	Chloroform	1.0	BQL
12	1,2-Dichloroethane	1.0	53
13	1,1,1-Trichloroethane	1.0	
14	Carbon tetrachloride	1.0	BQL
15	Bromodichloromethane	1.0	BQL
16	1,2-Dichloropropane	1.0	BQL
17	cis-1,3-Dichloropropene	1.0	BQL
18	Trichloroethene	1.0	BQL
19	trans-1,3-Dichloropropene	1.0	BQL
20	1,1,2-Trichloroethane	1.0	BQL
21	Dibromochloromethane	1.0	BQL
22	2-Chloroethylvinyl ether	1.0	BQL
23	Bromoform	1.0	BQL
24	Tetrachloroethene	1.0	BQL
25	1,1,2,2-Tetrachloroethane	1.0	BQL
26	Chlorobenzene	1.0	BQL
27	1,3-Dichlorobenzene	1.0	BQL
28	1,2-Dichlorobenzene	1.0	BQL
29	1,4-Dichlorobenzene	1.0	BQL

Comments:

Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor.

BQL = Below Quantitation Limit



IEA

An Aquarion Company

PURGEABLE AROMATICS
EPA 602 COMPOUND LIST

IEA Project Number:	646-140	Date Received:	06/24/93
IEA Sample Number:	9306487-01	Date Sampled:	06/24/93
Client Name:	Geophex, LTD	Date Analyzed:	07/07/93
Client Project ID:	312 Guilford 311 Bypass	Analysis By:	Ware
Sample Identification:	MW2-1	Dilution Factor:	100
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Benzene	1.0	1,300
2	Chlorobenzene	1.0	BQL
3	1,2-Dichlorobenzene	1.0	BQL
4	1,3-Dichlorobenzene	1.0	BQL
5	1,4-Dichlorobenzene	1.0	BQL
6	Ethylbenzene	1.0	BQL
7	Toluene	1.0	BQL
8	Xylenes (Total)	1.0	270

Comments:

Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor.

BQL = Below Quantitation Limit

Quantitation limit elevated due to sample dilution prior to analysis.

Sample diluted due to the presence of non-target compounds.

**IEA**

An Aquarion Company

PURGEABLE HALOCARBONS
EPA 601 COMPOUND LIST

IEA Project Number:	646-140	Date Received:	06/24/93
IEA Sample Number:	9306487-02	Date Sampled:	06/24/93
Client Name:	Geophex, LTD	Date Analyzed:	07/02/93
Client Project ID:	312 Guilford 311 Bypass	Analysis By:	Ware
Sample Identification:	Field Blanks	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation	Results
		Limit (ug/L)	Concentration (ug/L)
1	Chloromethane	1.0	BQL
2	Bromomethane	1.0	BQL
3	Vinyl Chloride	1.0	BQL
4	Dichlorodifluoromethane	1.0	BQL
5	Chloroethane	1.0	BQL
6	Methylene chloride	1.0	BQL
7	Trichlorofluoromethane	1.0	BQL
8	1,1-Dichloroethene	1.0	BQL
9	1,1-Dichloroethane	1.0	BQL
10	trans-1,2-Dichloroethene	1.0	BQL
11	Chloroform	1.0	BQL
12	1,2-Dichloroethane	1.0	BQL
13	1,1,1-Trichloroethane	1.0	BQL
14	Carbon tetrachloride	1.0	BQL
15	Bromodichloromethane	1.0	BQL
16	1,2-Dichloropropane	1.0	BQL
17	cis-1,3-Dichloropropene	1.0	BQL
18	Trichloroethene	1.0	BQL
19	trans-1,3-Dichloropropene	1.0	BQL
20	1,1,2-Trichloroethane	1.0	BQL
21	Dibromochloromethane	1.0	BQL
22	2-Chloroethylvinyl ether	1.0	BQL
23	Bromoform	1.0	BQL
24	Tetrachloroethene	1.0	BQL
25	1,1,2,2-Tetrachloroethane	1.0	BQL
26	Chlorobenzene	1.0	BQL
27	1,3-Dichlorobenzene	1.0	BQL
28	1,2-Dichlorobenzene	1.0	BQL
29	1,4-Dichlorobenzene	1.0	BQL

Comments:

Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor.

BQL = Below Quantitation Limit



IEA
An Aquarion Company

PURGEABLE AROMATICS
EPA 602 COMPOUND LIST

IEA Project Number:	646-140	Date Received:	06/24/93
IEA Sample Number:	9306487-02	Date Sampled:	06/24/93
Client Name:	Geophex, LTD	Date Analyzed:	07/06/93
Client Project ID:	312 Guilford 311 Bypass	Analysis By:	Ware
Sample Identification:	Field Blanks	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Benzene	1.0	BQL
2	Chlorobenzene	1.0	BQL
3	1,2-Dichlorobenzene	1.0	BQL
4	1,3-Dichlorobenzene	1.0	BQL
5	1,4-Dichlorobenzene	1.0	BQL
6	Ethylbenzene	1.0	BQL
7	Toluene	1.0	BQL
8	Xylenes (Total)	1.0	BQL

Comments:

Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor.

BQL = Below Quantitation Limit



IEA

An Aquarion Company

PURGEABLE HALOCARBONS
EPA 601 COMPOUND LIST

IEA Project Number:	646-140	Date Received:	N/A
IEA Sample Number:	9306487	Date Sampled:	N/A
Client Name:	Geophex, LTD	Date Analyzed:	07/06/93
Client Project ID:	312 Guilford 311 Bypass	Analysis By:	Ware
Sample Identification:	QC Blank	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation	Results
		Limit (ug/L)	Concentration (ug/L)
1	Chloromethane	1.0	BQL
2	Bromomethane	1.0	BQL
3	Vinyl Chloride	1.0	BQL
4	Dichlorodifluoromethane	1.0	BQL
5	Chloroethane	1.0	BQL
6	Methylene chloride	1.0	BQL
7	Trichlorofluoromethane	1.0	BQL
8	1,1-Dichloroethene	1.0	BQL
9	1,1-Dichloroethane	1.0	BQL
10	trans-1,2-Dichloroethene	1.0	BQL
11	Chloroform	1.0	BQL
12	1,2-Dichloroethane	1.0	BQL
13	1,1,1-Trichloroethane	1.0	BQL
14	Carbon tetrachloride	1.0	BQL
15	Bromodichloromethane	1.0	BQL
16	1,2-Dichloropropane	1.0	BQL
17	cis-1,3-Dichloropropene	1.0	BQL
18	Trichloroethene	1.0	BQL
19	trans-1,3-Dichloropropene	1.0	BQL
20	1,1,2-Trichloroethane	1.0	BQL
21	Dibromochloromethane	1.0	BQL
22	2-Chloroethylvinyl ether	1.0	BQL
23	Bromoform	1.0	BQL
24	Tetrachloroethene	1.0	BQL
25	1,1,2,2-Tetrachloroethane	1.0	BQL
26	Chlorobenzene	1.0	BQL
27	1,3-Dichlorobenzene	1.0	BQL
28	1,2-Dichlorobenzene	1.0	BQL
29	1,4-Dichlorobenzene	1.0	BQL

Comments:

Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor.

BQL = Below Quantitation Limit

N/A = Not Applicable

Corresponding Samples: 9306487-01

FORM 601 REV. 100391



IEA

An Aquarion Company

PURGEABLE HALOCARBONS EPA 601 COMPOUND LIST

IEA Project Number:	646-140	Date Received:	N/A
IEA Sample Number:	9306487	Date Sampled:	N/A
Client Name:	Geophex, LTD	Date Analyzed:	07/02/93
Client Project ID:	312 Guilford 311 Bypass	Analysis By:	Ware
Sample Identification:	QC Blank	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Chloromethane	1.0	BQL
2	Bromomethane	1.0	BQL
3	Vinyl Chloride	1.0	BQL
4	Dichlorodifluoromethane	1.0	BQL
5	Chloroethane	1.0	BQL
6	Methylene chloride	1.0	BQL
7	Trichlorofluoromethane	1.0	BQL
8	1,1-Dichloroethene	1.0	BQL
9	1,1-Dichloroethane	1.0	BQL
10	trans-1,2-Dichloroethene	1.0	BQL
11	Chloroform	1.0	BQL
12	1,2-Dichloroethane	1.0	BQL
13	1,1,1-Trichloroethane	1.0	BQL
14	Carbon tetrachloride	1.0	BQL
15	Bromodichloromethane	1.0	BQL
16	1,2-Dichloropropane	1.0	BQL
17	cis-1,3-Dichloropropene	1.0	BQL
18	Trichloroethene	1.0	BQL
19	trans-1,3-Dichloropropene	1.0	BQL
20	1,1,2-Trichloroethane	1.0	BQL
21	Dibromochloromethane	1.0	BQL
22	2-Chloroethylvinyl ether	1.0	BQL
23	Bromoform	1.0	BQL
24	Tetrachloroethene	1.0	BQL
25	1,1,2,2-Tetrachloroethane	1.0	BQL
26	Chlorobenzene	1.0	BQL
27	1,3-Dichlorobenzene	1.0	BQL
28	1,2-Dichlorobenzene	1.0	BQL
29	1,4-Dichlorobenzene	1.0	BQL

Comments:

Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor.

BQL = Below Quantitation Limit

N/A = Not Applicable

Corresponding Samples: 9306487-02

FORM 601 REV. 100391



IEA
An Aquarion Company

PURGEABLE AROMATICS
EPA 602 COMPOUND LIST

IEA Project Number:	646-140	Date Received:	N/A
IEA Sample Number:	9306487	Date Sampled:	N/A
Client Name:	Geophex, LTD	Date Analyzed:	07/07/93
Client Project ID:	312 Guilford 311 Bypass	Analysis By:	Ware
Sample Identification:	QC Blank	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Benzene	1.0	BQL
2	Chlorobenzene	1.0	BQL
3	1,2-Dichlorobenzene	1.0	BQL
4	1,3-Dichlorobenzene	1.0	BQL
5	1,4-Dichlorobenzene	1.0	BQL
6	Ethylbenzene	1.0	BQL
7	Toluene	1.0	BQL
8	Xylenes (Total)	1.0	BQL

Comments:

Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor.

BQL = Below Quantitation Limit

N/A = Not Applicable

Corresponding Samples: 9306487-01



IEA

An Aquarion Company

PURGEABLE AROMATICS
EPA 602 COMPOUND LIST

IEA Project Number:	646-140	Date Received:	N/A
IEA Sample Number:	9306487	Date Sampled:	N/A
Client Name:	Geophex, LTD	Date Analyzed:	07/06/93
Client Project ID:	312 Guilford 311 Bypass	Analysis By:	Ware
Sample Identification:	QC Blank	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Benzene	1.0	BQL
2	Chlorobenzene	1.0	BQL
3	1,2-Dichlorobenzene	1.0	BQL
4	1,3-Dichlorobenzene	1.0	BQL
5	1,4-Dichlorobenzene	1.0	BQL
6	Ethylbenzene	1.0	BQL
7	Toluene	1.0	BQL
8	Xylenes (Total)	1.0	BQL

Comments:

Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor.

BQL = Below Quantitation Limit

N/A = Not Applicable

Corresponding Samples: 9306487-02



IEA
An Aquarion Company

3000 WESTON PKWY.
CARY, N.C. 27513
PH # 919-677-0090
FAX # 919-677-0427

CHAIN OF CUSTODY RECORD

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER

NO: 36224

039-8515

GEOPHEX LTD

Page 1 of 1

PROJECT NAME

312 NC DOT Guilford 311 Bypass

CONTAINER # OF

SOIL WATER

REQUESTED PAYMENT TERMS

EPA 9071
EPA 3550
EPA 5030

STATION/LOCATION

TSAOEG 11' 4/27/93 11:00 X Act Sillard of 75 Pit
TSBOEG 7' 4/27/93 11:15 X Act Vardand of 75 Pit
TSOEG 8' 4/27/93 11:45 X Along side wall of 76 Pit
TSOEG 7' 4/27/93 12:20 X Middle of 77 Pit
B1105 4/27/93 13:50 X 2 yards E of 1155 pits
B1105 4/27/93 11:15 X Edge of slope
B1109 4/27/93 12:45 X 2702 slope
B1106 4/27/93 14:15 X Farthest from 1155 pits

RECEIVED BY (SIGNATURE)

DATE

TIME

RECEIVED BY

DATE

TIME

IEA QUOTE NO.

IEA RUSH NO.

George K. L. Fields

4/27/93

1:30

RECEIVED BY

DATE

TIME

IEA QUOTE NO.

IEA RUSH NO.

George K. L. Fields

4/27/93

9:30

RECEIVED BY

DATE

TIME

IEA QUOTE NO.

IEA RUSH NO.

PROJECT MANAGER (PLEASE PRINT)

93042995

☒ BOTTLE INTACT
☐ PRESERVED
☒ CHILLED
☐ CUSTODY SEALS
☐ SEALS INTACT
☐ SEE REMARKS

IEA #646-137
646-13710

Appendix C

Laboratory Analytical Results and Chain of Custody Record

Total petroleum hydrocarbon (TPH) using SW-846 Methods 3550 and/or 5030.

<u>Description</u>	<u>Page</u>
<i>TPH using Methods 3550 and/or 5030</i>	
E-1	C-1
E-2	C-2
E-3	C-3
QC Blank for Method 3550 and 5030.....	C-4
QC Blank for Method 5030	C-5
Chain of Custody Record.....	C-6



IEA

An Aquarion Company

Total Petroleum Hydrocarbon Analysis

IEA Project No: 646-145 Date Sampled: 07-28-93
IEA Sample No: 9307654-01 Date Received: 07-29-93
Client Sample No: E-1 Date Extracted: 08-04-93
Client Project No: 312 Guilford 311 Bypass

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)
Date Analyzed: 08-04-93 Analyzed by: Westhead
Time Analyzed: 2146

The sample contains a petroleum hydrocarbon blend with a distillation range similar to kerosene. The concentration is 23 mg/kg.
The quantitation limit is 2.0 mg/kg.

Comment:

=====

Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)
Date Analyzed: 08-03-93 Analyzed by: Westhead
Time Analyzed: 1618

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 12 mg/kg.

Comment:

Quantitation limit elevated due to sample dilution prior to analysis.
Sample diluted due to the presence of non-target compounds.



IEA

An Aquarion Company

Total Petroleum Hydrocarbon Analysis

IEA Project No:	646-145	Date Sampled:	07-28-93
IEA Sample No:	9307654-02	Date Received:	07-29-93
Client Sample No:	E-2	Date Extracted:	08-04-93
Client Project No:	312 Guilford 311 Bypass		

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)
Date Analyzed: 08-04-93 Analyzed by: Westhead
Time Analyzed: 2227

The sample contains a petroleum hydrocarbon blend with a distillation range similar to kerosene. The concentration is 4.0 mg/kg.
The quantitation limit is 2.0 mg/kg.

Comment:

=====

Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)
Date Analyzed: 08-02-93 Analyzed by: Westhead
Time Analyzed: 1822

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:



IEA
An Aquarion Company

Total Petroleum Hydrocarbon Analysis

IEA Project No:	646-145	Date Sampled:	07-28-93
IEA Sample No:	9307654-03	Date Received:	07-29-93
Client Sample No:	E-3	Date Extracted:	08-04-93
Client Project No:	312 Guilford 311 Bypass		

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)
Date Analyzed: 08-04-93 Analyzed by: Westhead
Time Analyzed: 2308

The sample does not contain a petroleum hydrocarbon blend in the distillation range referenced above. The quantitation limit is 2.0 mg/kg.

Comment:

=====

Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)
Date Analyzed: 08-02-93 Analyzed by: Westhead
Time Analyzed: 1857

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:



IEA

An Aquarion Company

Total Petroleum Hydrocarbon Analysis

IEA Project No: 646-145 Date Sampled: N/A
IEA Sample No: 9307654 Date Received: N/A
Client Sample No: QC Blank Date Extracted: 08-04-93
Client Project No: 312 Guilford 311 Bypass

Extraction (SW 846 - 3550) / GC-FID analysis (for #2 fuel oil, kerosene, varsol)
Date Analyzed: 08-04-93 Analyzed by: Westhead
Time Analyzed: 1538

The sample does not contain a petroleum hydrocarbon blend in the distillation range referenced above. The quantitation limit is 2.0 mg/kg.

Comment:

N/A= Not Applicable

Corresponding Samples: 9307654-01 through 9307654-03

=====

Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)
Date Analyzed: 08-02-93 Analyzed by: Westhead
Time Analyzed: 0846

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:

N/A= Not Applicable

Corresponding Samples: 9307654-02 and 9307654-03



IEA

An Aquarion Company

Total Petroleum Hydrocarbon Analysis

IEA Project No:	646-145	Date Sampled:	N/A
IEA Sample No:	9307654	Date Received:	N/A
Client Sample No:	QC Blank		
Client Project No:	312 Guilford 311 Bypass		

Purge and Trap (SW 846 - 5030) / GC-FID analysis (for gasoline only)
Date Analyzed: 08-03-93 Analyzed by: Westhead
Time Analyzed: 0832

The sample does not contain a petroleum hydrocarbon blend with a distillation range similar to gasoline. The quantitation limit is 2.0 mg/kg.

Comment:

N/A= Not Applicable

Corresponding Sample: 9307654-01

